

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Non-provisional Patent Application

for

**UNIVERSAL COMPUTER CABLE CONNECTOR PROTECTOR COVER**

**Inventor**

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## **Universal Computer Cable Connector Protector Cover**

### **BACKGROUND OF THE INVENTION**

#### **FIELD OF THE INVENTION**

The present invention relates to a computer connector cover mechanism, and  
5 more particularly, to a connector cover mechanism for supporting and holding a  
computer cable connected to a supporting body.

#### **BACKGROUND OF THE PRIOR ART**

There are a variety of locking or latching designs or systems in the electrical  
connector art for connecting a cable to an electrical instrument, such as a computer  
10 chassis. In some latching systems, the connector utilizes a claw-like securing structure.  
Many connectors use a pair of thumbscrews that attach to a female receptacle on the  
computer chassis. This type of latching system has its disadvantages, however. Because  
of the receptacles being generally loosely attached to a card internal to the computer, the  
thumbscrews are apt to become disengaged. If sufficient tensile stress is put on the  
15 connector, it can become disengaged, or worse, it can unseat the card from the computer.  
Therefore, an additional latch is often used to provide integrity to the latching structure.

However, given the propensity of users to attempt to hastily remove the cable  
assembly from the computer, and given the fact that various computers currently used are  
portable and therefore operate in unconventional environments, it also is desirable to  
20 have a connector latching structure that holds the cable securely to the computer.

Consequently, there exists an unfulfilled need for an apparatus to simply and  
securely hold a computer cable to a computer. Such apparatus should be easy to operate  
and sturdy enough to prevent a cable from release until desired.

## **SUMMARY OF THE INVENTION**

It is, therefore, an object of the present invention to provide a computer cable protector cover that avoids the disadvantages of the prior art.

Another object of the present invention is to provide a cable connector cover that  
5 can be quickly and efficiently engaged and disengaged to a computer. A related object is  
to provide a cable connector cover that can securely align and hold a computer cable.

It is a further object of the present invention to provide a cable connector cover  
that is rugged and durable.

The above and other objects, features, and advantages of the present invention are  
10 described in more detail with reference to the accompanying drawings.

According to a first aspect, the present invention provides a cable connector cover  
having an access door hingedly mounted to a base. The base enables alignment and  
connection to a computer adjacent to a PCMCIA port. A top mounting plate overlaps a  
portion of the computer frame to secure the cable connector cover in place. When the  
15 access door is in the open position, a cable can be inserted therein to establish a  
connection at such PCMCIA port. The access door can then be closed to hold the  
connector in place. A cable clamp also provides stress relief for the computer cable.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

The above and other features, aspects, and advantages of the present invention are  
20 considered in more detail, in relation to the following description of embodiments thereof  
shown in the accompanying drawings, in which:

Fig. 1 is a view of an embodiment of the present invention installed on a computer  
input device;

Fig. 2 is an enlarged portion of Fig. 1;

Fig. 3 is a perspective view of an assembly of the apparatus according to the present invention;

Fig. 4 is a side elevational view of the apparatus of Fig. 3;

5 Fig. 5 is a top plan view of the apparatus of Fig. 3;

Fig. 6 is a front elevational view of the apparatus of Fig. 3;

Fig. 7 is a perspective view of the inner components of the apparatus of Fig. 3;

Fig. 8 is a perspective view of the apparatus of Fig. 3, with the cover open;

Fig. 9 is a bottom plan view of the apparatus of Fig. 3;

10 Fig. 10 is a perspective view of an apparatus according to the present invention with a computer cable connector;

Fig. 11 is a perspective view of an assembly according to an alternate embodiment of the present invention; and

Fig. 12 is a perspective view, with the cover open, of an assembly according to a  
15 further alternate embodiment of the present invention.

#### **DETAILED DESCRIPTION OF THE INVENTION**

The invention summarized above and defined by the enumerated claims may be better understood by referring to the following detailed description, which should be read in conjunction with the accompanying drawings. This detailed description of an embodiment, set out below to enable one to build and use an implementation of the invention, is not intended to limit the invention, but to serve as a particular example thereof. Those skilled in the art should appreciate that they may readily use the conception and specific embodiment disclosed as a basis for modifying or designing

other methods and systems for carrying out the same purposes of the present invention. Those skilled in the art should also realize that such equivalent assemblies do not depart from the spirit and scope of the invention in its broadest form.

Figures 1 and 2 show an assembly according to the present invention, indicated 5 generally as 10, attached to a computer input device. As shown in Figures 3 - 6, the apparatus includes an access door 13 hingedly mounted to a base 15 by hinge pin 18. Assembly 10 further comprises an upper mount plate 21 and a lower plate 24. A cable aperture 27 in the front of access door 13 enables a computer connector cable to pass out 10 of assembly 10. A pair of thumbscrews 30, 31 permits adjustable tightening of upper mount plate 21 in a mounted position. Thumbscrews 30, 31 can be replaced by or augmented with flathead screws. In either case, such screws should have retainer clips to prevent loss during cleaning or insertion. Thumbscrew 34 holds access door 13 in a closed position, such as shown in Figures 1 and 2. A portion 38 of base 15 may extend 15 out of the front of access door 13. Such portion 38 of base 15 provides vertical support for a computer cable connector when such cable is attached to a computer. Such portion 38 provides the bottom portion of a cable fastener, the top portion comprising cable clamp element 41 (best seen in Figure 7) and clamp knob 43.

Referring to Figure 4, at least a portion of upper mount plate 21 defines a generally curved hook segment 48. The hook segment 48 is preferably curved slightly 20 and hooked downwardly, to form an attachment when mounted to a computer. An alignment plate 51 attached to lower plate 24 assists in connecting assembly 10 to a computer such that a computer cable can be easily aligned for connection to the computer PCMCIA port or other type of connector port.

Assembly 10 is sized and configured to enable a pair of computer cables to be attached to a pair of ports, vertically oriented on such computer. In such a case, said pair of cables should be stacked with one cable connector on top of another cable connector.

As shown in Figure 7, lower plate 24 presents three screw sockets 54, 55, 56 5 having internal threaded portion for receiving thumbscrews 30, 31, 34. Each such thumbscrew may preferably include a thumbscrew retainer, such as 59. In some embodiments, an eject button 62 may be provided to assist in removal of a computer cable. When only one cable is attached to the computer within the protector assembly 10, cable clamp 41 is pivoted in a position substantially parallel to the front of access door 10 13. Clamp knob 43 is threadably engaged in cable clamp 41, such that rotation of clamp knob 43 about its longitudinal axis will cause cable clamp 41 to pivot into the clamping position and rotation of clamp knob 43 in the opposite direction will position cable clamp 41 substantially perpendicular to the front of access door 13 to enable a pair of cables to pass through cable aperture 27.

15 In Figure 8, assembly 10 is shown with access door 13 in an open position. Using thumbscrew 34 on access door 13, a user can rotate the access door 13 out of the way, providing access to enable a computer cable to be attached to a computer PCMCIA port or other type of connector port. A computer cable connector would rest on the base 15, at an appropriate height determined by front portion 38. Once the cable is attached to the 20 computer, the clamp knob 43 is rotated to pivot cable clamp 41 into the clamping position and access door 13 is rotated to a closed position and thumbscrew 34 is tightened to hold the access door 13 in such closed position and to push cable clamp 41 against a portion of the cable to hold the cable in place.

Lower plate 24, shown in Figure 9, has the bottom portion of screw sockets 54, 55, 56 disposed therein. Mounting screws 65 permit attachment of the assembly 10 to a computer. Alignment screws 67 are used in conjunction with alignment plate 51 (Figure 4) to align the assembly 10 to the computer.

5         Figure 10 shows an assembly 10 according to the present invention with a single computer cable connector C in position for attachment to a computer. Using thumbscrew 34 on access door 13, a user can rotate the access door 13 out of the way, providing access to enable computer cable C to be attached to a computer PCMCIA port or other type of connector port. Computer cable connector C rests on the base 15, at an 10 appropriate height determined by front portion 38. Once the cable is attached to the computer, the access door is rotated to a closed position and thumbscrew 34 is tightened to hold the access door 13 in such closed position. In this embodiment, a pad may be provided in the access door 13 to hold the cable connector C to the base 15. The radius of the portion of access door 13 wherein thumbscrew 34 penetrates can rest against cable 15 connector C to keep it in place. Base plate 72 can be screwed into the bottom of the computer using existing hardware.

When two cables are attached to the computer within the protector assembly 10, cable clamp 41 is positioned out of the way of cable aperture 27; that is, substantially parallel to the computer cable. The access door 13 provides sufficient clamping force to 20 hold both cables in place.

Referring to Figure 11, assembly 10 can be modified to enable attachment to various size computers. Base shim 75 can be inserted to raise the height of base 15 to ensure that the cable connector can align vertically with a port on the computer. Upper

shim 78 can be used to vertically adjust the height of upper mount plate 21 in order to enable the assembly to be attached to the computer. In an alternate embodiment, as shown in Figure 12, base 15 may be thicker to enable a larger vertical height of the front portion 38.

5        The invention has been described with references to a preferred embodiment. While specific values, relationships, and materials have been set forth for purposes of describing concepts of the invention, it will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the basic concepts  
10      and operating principles of the invention as broadly described. It should be recognized that, in the light of the above teachings, those skilled in the art could modify those specifics without departing from the invention taught herein. Having now fully set forth the preferred embodiments and certain modifications of the concept underlying the present invention, various other embodiments as well as certain variations and  
15      modifications of the embodiments herein shown and described will obviously occur to those skilled in the art upon becoming familiar with said underlying concept. It is intended to include all such modifications, alternatives and other embodiments insofar as they come within the scope of the appended claims or equivalents thereof. It should be understood, therefore, that the invention may be practiced otherwise than as specifically  
20      set forth herein. Consequently, the present embodiments are to be considered in all respects as illustrative and not restrictive.